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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/579,914

05/19/2006

Roger Pellenc

0514-1229

6896

466

7590

04/29/2009

YOUNG & THOMPSON

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EXAMINER

PIGGUSH, AARON C

ART UNIT

PAPER NUMBER

2838

MAIL DATE

DELIVERY MODE

04/29/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/579,914	PELLENC, ROGER	
	<b>Examiner</b>	<b>Art Unit</b>	
	Aaron Piggush	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 22-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 22,27 and 38-40 is/are rejected.
- 7) ☒ Claim(s) 23-26 and 28-37 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/19/06 &amp; 3/27/09</u> .                                   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 22-40 are objected to because of the following informalities: The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. Additionally, the terms/phrases "for example", "preferably", "normally", and "as the case may be", render multiple claims indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 22, 27, 38, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Puchianu (GB 2372645 A) in view of Podrazhansky (US 5,889,385).

With respect to claim 22, Puchianu discloses a process for the balanced charging of  $n$  cells, with  $n \geq 2$ , constituting a battery and associated in series ( $C1-Cn$  in Fig. 1), each cell being comprised by one or several elements mounted in parallel (Fig. 4 and 5), which process is characterized in that it consists in providing continuously, preferably from the onset of the charging operation of the battery and throughout the course of this operation, a surveillance of

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the levels of charge of the different cells (Fig. 2a and 35 in Fig. 4), and in carrying out, as a function of the mentioned evaluation of said charge levels, either a uniform supply of all the cells, or a balancing of said charge levels of said cells by supplying these latter in a differentiated manner as a function of their current levels of charge (pg 8 and 23 and abstract), and in that it consists in triggering for each cell of the battery, one after the other, in a sequential manner, for a fractional portion of the total charge time of the battery, sequences comprising a refreshed evaluation of the level of the charge of the cell in question, followed, as a function of its level of charge and with respect to all the levels of charge of the other cells of the battery, a uniform or differentiated supply, this according to a repeating cycle throughout the operation of charging (pg 11, 12, and 34, Fig. 6, and abstract).

However, Puchianu does not expressly disclose wherein the batteries are lithium ion or lithium polymer.

Podrazhansky discloses the use of lithium cells (col 3 ln 25-44 and col 10 ln 20-31) in a battery equalizer (abstract), in order to allow for charging/discharging of a larger number of cell types (expands the area to which the device can be used).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include the use of lithium ion or lithium polymer cells in the device of Puchianu, as did Podrazhansky, so that the device could be used with other types of battery cells that have a higher energy density and lower discharge rate.

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With respect to claim 27, Puchianu discloses wherein the charging of the battery is normally stopped when the current intensity of the overall charge of the assembly of cells of this latter descends below a predetermined threshold value (pg 35 and 36, abstract, and 8 in Fig. 3).

Please note that the terms “normally” and “for example” are indefinite, as noted in the objections above.

With respect to claim 38, please see the rejection of claim 22, wherein Puchianu also discloses a digital processing unit for managing the process (11 in Fig. 3 and 3 in Fig. 1), derivation circuits (59 in Fig. 4 and 65 in Fig. 5), and one or more resistances (61 and 63 in Fig. 5).

With respect to claim 39, Puchianu discloses n analog modules for measuring the voltage (35 in Fig. 4), and an analog/digital converter (pg 15 and 38 in Fig. 4); however, does not expressly disclose wherein a multiplexing circuit is used.

Although, it should be noted that microcontrollers and CPUs are well known to use multiplexers (microcontroller in Fig. 4 and CPU in Fig. 3 in the device of Puchianu).

Podrazhansky discloses the use of multiplexers and analog/digital converters in a battery charging/equalizing device (20-25 in Fig. 1), in order to gain the benefits of using digital circuitry (less interference/errors, greater amount of information transferred).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include multiplexers in the device of Puchianu, as did Podrazhansky, so that greater control and flexibility could be provided for the selection/processing of voltage, temperature, and current information.

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4. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Puchianu (GB 2372645 A) and Podrazhansky (US 5,889,385), and further in view of Matthews (US 5,600,247).

With respect to claim 40, Puchianu does not expressly disclose wherein the device is integrated into an assembly of a self-contained electric power tool.

Matthews discloses a sensing and charge circuit for a battery used in a power tool (col 2 ln 20-34, col 5 ln 51-55, and abstract), in order to provide additional/advanced monitoring and control for batteries used with tools in specific environments (power tool applications).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include the process/device of Puchianu in a power tool, as did Matthews, so that the user could gain the benefits of additional/advanced monitoring and control for batteries in other environments (power tool applications), which would in turn allow for a greater useful lifespan of the batteries.

***Allowable Subject Matter***

5. Claims 23-26 and 28-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, as well as correcting the additional objections presented for claim 23 itself (as mentioned under the Claim Objections section above).

Claim 23 recites the process according to claim 22, characterized in that it comprises at least the execution of the following operations under the management of a digital processing unit, and this from the beginning of charging: evaluation at regular intervals, of the quantity of energy stored in each cell by measuring a parameter indicative of said quantity; comparative

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analysis of the different evaluated quantities of energy or of the different values of the measured parameter for each cell; determination of the cell tardiest to charge and of the cell or cells the most advanced in charging; supplying the different cells mounted in series in a uniform manner or with the limitation of charging current for the cells other than the tardiest or for the cell or cells most advanced in charging, by derivation of all or a portion of said current at the level of this or these latter; sequential repetition of the different mentioned operations obtaining an end condition of the charge of the battery or the detection of a fault, of a dysfunction or an exceeding of an admissible threshold value.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Piggush whose telephone number is (571)272-5978. The examiner can normally be reached on Monday-Friday 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on 571-272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. P./

Examiner, Art Unit 2838

/Edward Tso/

Primary Examiner, Art Unit 2838